DOCUMENT RESUME

ED 234 652 HE 016 449

AUTHOR Pommrehn, D. Jack
TITLE Computer Assisted Degree Progress Reporting.
PUB DATE 19 Apr 78
NOTE 24p.; Paper presented to the Annual Meeting of the American Association of Collegiate Registrars and Admissions Officers (April 19, 1978).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Advising; *Academic Records; College Credits; *Computer Oriented Programs; *Degree Requirements; Higher Education; Program Administration; Program Development; *Program Effectiveness; Undergraduate Study
IDENTIFIERS *Academic Progress Report; *University of Denver CO

ABSTRACT

Background information on University of Denver's computerized degree check and advising system, the Academic Progress Report (APR), is presented. The APR program, which was implemented for undergraduates in fall 1976, is discussed in terms of the need for the program, its development, implementation, problems, and future directions. The system provides a computerized statement of degree requirements and student records to help with academic advising. Department heads were given a listing of major and minor requirements obtained from college bulletins and asked for corrections. A pilot check of the system was undertaken with six departments. A positive outcome has been that faculty can spend more time talking with students about their future and career goals. It was found that academic rules programmed in the computer have been more reliable than an employee's memory of rules. Important components of the project include communicating changes in degree requirements and ongoing discussion of the project and problems among staff. Appendices provide specific information on the computer and the software languages and a list of possible computer messages regarding violations of regulations for earning credits. (SW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED234652

UNIVERSITY OF DENVER

PRESENTATION TO

AMERICAN ASSOCIATION OF COLLEGIATE
REGISTRARS AND ADMISSIONS OFFICERS

April 19, 1978

PROGRAM:

COMPUTER ASSISTED DEGREE PROGRESS REPORTING

IR 016 449

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

D. Jack Pommrehn,
Registrar

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

D. Jack Pommrehn

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

I have been looking forward to giving a follow-up report on a presentation I made at the AACRAO meeting in Washington D.C. two years ago. At that time I described a new computerized degree check and advising system named the Academic Progress Report that we were developing and testing at the University of Denver. The APR idea as noted then was a result of Dr. Mayer's presentation in 1974 at Atlanta. I am truly indebted to Dr. Mayer for giving the inspiration and headaches to launch this project.

The APR program was piloted in the Autumn of 1975 and was totally implemented for undergraduates in the Autumn Quarter of 1976. It has withstood many pressures, and I honestly believe there would be a revolt on campus from faculty and students if someone suggested that the program be dropped.

I want to outline for you some background leading to a need for the APR, its development, implementation, problems and finally, a look to the future. Included will be some emphasis on things to avoid.

For your information, the University of Denver is private and nonsectarian with an enrollment of over 7700 students. The students come from all of the states and 65 foreign countries. The APR was developed for undergraduate degree candidates which include over 4,000 students enrolled in 45 majors leading toward seven degrees.

In 1973, some solutions were needed to some very significant problems in the Registrar's Office. The Field House at the University had been condemned resulting in a move to a new registration system. The development of the new telephone registration program resulted in advising taking on new importance. For example, students could not register without going to their department and securing a form containing a unique registration number and the date and time to call in telephone requests for courses. Advising became a part of this process.

It was an exciting time in the Registrar's office as we neared the first telephone registration. There was a staff turnover in the degree check area. Students were standing in line waiting for the hand prepared "status sheets" showing progress toward a degree. Faculty had the office telephone lines tied up all day asking how many hours were required for graduation and how could they advise when there was no status sheets except for students about to graduate. All of this was capped off on the first day of the telephone registration when students began calling the registration office to get registered on CRTs. As the phones started ringing, the computer went down.

Fellow Registrars--it was grim!

Dr. Mayer's presentation in Atlanta gave me new hope, but a number of things had to be done.

Telling you how I got the project started may be of some value. My first mission was to consult with the systems programmer who worked with the registration. When Fred Peal said it was possible to develop a computerized statement that would help with the degree check and advising, I was greatly encouraged and went to the second step. An employee in the degree check area of the office was anxious to work toward her doctorate and had an excellent rapport established with the Deans and Department Chairmen. The challenge to me was raising the money to create a Graduate Research Assistantship for the employee to use. This was a major task.

The Vice Chancellor for Academic Affairs and the Deans had to be convinced that there would be improvement in the degree check and in advising. Fortunately, Registrars have learned from Admissions Officers how to exaggerate. By pointing to a report from an Advisory Committee on University Priorities, I was able to show that the major concern of the committee was with the need for personalized advising and increased informal faculty-student communication.

About the same time, the Carnegie Commission stated that "advising is not now a well performed aspect of higher education." Before that, LeVine and Weingert had stated in a stronger fashion in their book, Reform of Undergraduate Education, that "advising is still a vast wasteland."

With some politicking and persistence, the Vice Chancellor and Deans endorsed the project and provided funding for the Graduate Research Assistantship.

Work on the project began when the GRA, Caroline Aitken, made appointments with each chairman to discuss and promote the project. In addition, she gave each chairman a listing of major and minor requirements from the college bulletins and asked for corrections. Many hours were also spent with the Associate Deans reviewing academic rules to eliminate the vagueness in the General Education requirements. (Fred Peal has problems programming vague rules.)

Frequent meetings were held with Fred at the Computing Center to discuss the systems-programming approach. Flexibility for changes of course offerings and requirements was the essential key to developing the system.

Caroline was able to work on this project for her dissertation. This was important as it resulted in setting up some control groups to evaluate the APR against other materials used in advising.

A year was spent preparing for the first APR run. As you might imagine, a lot of testing was included. After a major was programmed, we could get a printout of majors for checking. After countless hours and various kinds of strains, we were ready for the first real test.

In the Autumn of 1975, the project was piloted with six departments in the College of Arts and Sciences. We were very careful to label this as a pilot project--an experiment in which we needed help from faculty and students. Shortly before the APR was provided to the six departments, we went to the expense of producing a book for both faculty and students as a way of introducing the APR. We went to departmental meetings to discuss the APR and to answer questions.

The reception and response to the first APR by students and faculty in the six departments was positive. The problem area was with transfer work that in some cases was not entered or not entered properly. In addition, it may have been a mistake to provide an APR to seniors nearing graduation. A number of these students had received exceptions to rules as they prepared to graduate, and the APR did not take the exceptions into account.

In total, we were greatly encouraged by the pilot and kept moving ahead. By this time I had appointed an APR Coordinator in my office so that all problems and changes of course locations on the APR (not policy changes) would come through one position. For example, a feature of the APR is the ease with which a course or courses may be moved from one section of the APR to another. The APR Coordinator handled this type of procedure.

By the Autumn of 1976, all undergraduate students working toward a degree received an APR through their advisor. The advisor and Dean also received an APR along with my office.

(I believe you have an APR, and it may be helpful to go through the types of information shown on the printout.)

In looking at some of the positive outcomes of the APR, let me share with you the following:

1. The Deans, department chairmen and faculty support the APR. A University publication quoted the Chairman of the Sociology Department as follows:

> "We were one of the first departments in the University to use the system. When I first heard about it, I thought it would be great, and after we started using it, we were astounded by its effectiveness.
>
> Students' reactions to having their complete college career in front of them is "amazing", Drabek said, and it's also been useful in talking with students thinking about coming to the University."

Obviously, Dr. Drabek is a very progressive chairman and he now gets about anything he wants from me.

<u>While students will complain about most things, I believe the majority are quite supportive of the APR.</u> Again a comment in the University News:

"Before, I had a general idea of what I had taken and what I needed, but I never was very sure. Now I can sit down with the APR and my advisor and everything we need to know is right in front of us. It sure makes things easier."

2. Number two in positive outcomes is that Caroline Aitken is now Dr. Aitken. In her dissertation, A Computerized Tool for Academic Advising, she notes, in a controlled study, that by using the APR there was an 83 per cent reduction of advising errors by faculty when compared with other advising tools used by Faculty such as the college bulletin or existing departmental records.
3. The number of petitions by students requesting exceptions to academic rules has been significantly reduced. There was an 82 per cent reduction in the petitions to the College of Arts and Sciences in the Spring Quarter of 1975 compared to the Spring Quarter of 1976.
4. Although I cannot provide figures, I can assure you that student traffic to the graduation check area of our office has been significantly reduced.

5. I believe the change of attitude on the part of faculty is worth mentioning. The faculty can spend more time talking with students about their future and career goals rather than fumbling through records to reconstruct what the student has taken, requirements met and those remaining.

6. The student attitude has also changed. The usual comment a few years ago was, "my advisor or the Registrar's Office messed me up." While not entirely free of those statements, the students are now recognizing problems sufficiently in advance to solve them. The petitions asking for exceptions to academic rules have a different tune. The blame for problems is not a part of the petition--the request is for an exception to help meet some educational objectives such as exceeding the number of hours allowed in one department as a way to better prepare for graduate school.

7. The clerical tasks for both faculty and my staff have been reduced. Time is put to better use.

8. For my office, it is easier for a new employee to learn the job and quite obviously, there are fewer errors. Academic rules programmed in the computer have proven more reliable than an employee's memory of rules. Let me give you an example. The General Education English requirement has changed several times since 1970. We are probably due for another change in 1979. (See Appendix B)

Mr. Peal's programming on the APR has shown faculty, students and my staff how combinations of these courses fulfill the requirement. It has saved my staff, the students and faculty advisors numerous hours and phone calls to the English Department to check on which courses may be used. In another example, last year a department made 140 curriculum changes with course additions, deletions, title and credit changes. Again Mr. Peal's programming has proven beneficial in showing on the APR how a requirement may be met. One key in the programming is to use the date the student entered the University and relate it to requirements. As requirements change, Mr. Peal then uses an "or" statement, e.g., 16-204 (old curriculum) or 16-281 (new curriculum) to satisfy a requirement. If there are numerous requirement changes in the major, the department may want to make some substitutions to meet the new requirements. Since all of the major courses are shown, and the department approves the major at the time of graduation, there is little problem.

9. The whole advising effort at the University has improved. The College of Arts and Sciences holds meetings for advisors prior to registration periods. Some departments hold advising parties as a way to reach students.

10. In general, the number of drops and adds has been reduced since we began using the APR. I must qualify that statement by noting an increase in drop/adds this year. The faculty had a banner year in changes of course offerings which I believe has been a factor.

11. If a part of the so-called Consumerism issue is to keep a student informed, the APR meets the test when considering degree requirements met and those remaining for enrolled degree students.

12. An interesting side light is the use students want to make of the APR when applying for a job. The arrangement of courses is much more beneficial than the transcript, particularly in displaying the major(s) and minor(s) areas.

I have told you of some positive results of the APR, now let me tell you of some problems and pitfalls.

First perhaps I should admit that we vaguely recognized the possibility of failure in instituting the APR. However, even in failure, the effort put forth by Mr. Peal in the Computing Center would have left us much further ahead in our systems programming than if no effort had been made. Rather than a number of programs and systems with a variety of purposes, Mr. Peal moved into a very valuable data base. In addition, if things had not gone well, I

might have keynoted an AACRAO presentation on the "Systems That Failed".

Among the foremost of ways that the APR could be destroyed is a failure of communications. A few months ago some problems emerged that were not related to the accuracy of the APR but to other factors. I estimate that about three per cent of the students receiving the APR come to our office shortly after they receive it from advisors and before registration. A rather common comment when they come in is that the APR is totally wrong and messed up. Quite often students choose more colorful words.

Once we get down to the actual problems, the students often want a course that is in the elective area moved to General Education, and a course in General Education moved to a major or minor. In other words, the computer made a wrong choice with that course--an evaluator using a manual system could have made the same choice as the computer.

The point of all this is that a negative attitude can easily get started among faculty and students. Despite meetings with advisors, there will be a percentage that didn't get information or if they did, it will be ignored.

Suspicions raised are frightening especially when the APR is correct. Last February a freshman came in the office and asked that we check the accuracy of the APR since her friends said they (the APRs) were messed up.

Upon questioning, the student noted that the completed courses were correct, and that the courses shown as being "in progress" were also correct. Although the student seemed satisfied, I'm not sure the suspicions had been completely overcome. Part of the problem is with those who are anti-computer, anti-Registrar and/or administration.

In answer to this type of problem, Fred, Caroline and myself have been working at ways to inform faculty that the APR can be of great value, and that we need help from advisors in letting us know of problems.

Along these same communication lines is the occasional comment that the APR is not correct because course 13-123 now fulfills a requirement and the course is being placed in electives. Our problem is that we have not been informed of the change of requirements. The necessary procedures for informing my office of requirement changes are well established--it simply doesn't work very well. The students are generally our best source. If we cannot work through the existing system, it may be necessary to provide each department with a listing of requirements for checking. At the same time a little P.R. work might be achieved.

Another area of communication that needs attention is the office staff. Even if in your current situation, the staff is anxious for a change, don't assume that a move to computerization will be the answer. I think all of us can develop a mistrust for computers, and if some duties are assumed by a machine, there is bound to be some challenging.

Obviously, the staff needs to be involved in the development and implementation of the program. It is necessary to have the staff question the output, but hopefully it will come out in a positive manner rather than negative. Continued staff involvement beyond any coordinator position is critical. There needs to be an on-going discussion of the program and the problems to be resolved. I have learned this the hard way--a point that must be emphasized.

Plan for the transition from one form of degree checking to another. It is necessary to parallel for awhile, but the change must be made when you have complete confidence in the new system. As I have found out, the confusion of having two systems does not help staff morale.

A major challenge to the integrity of the new system, in our case, has been the method of inputting changes. By necessity we have used coding sheets to input transfer work and all other changes. The coding sheets go through Data Entry with printouts back to us for checking. This can and has led to problems of having incorrect information recorded on the APR. Only recently have we been able to use CRTs for the entry and changing of information. This is significantly reducing problems and has had a positive effect on the staff. There is a much better attitude and feeling of confidence in the APR when the staff can make changes using the CRT.

The last area that I need to mention is the Computing Center. In the beginning I mentioned the first task was the necessity of a commitment from the Computing Center. Over a period of time things change there as they do throughout the campus. Present computer priorities are reviewed and new priorities assigned. If communications aren't open, problems are likely to develop with major consequences to the integrity of some special programs such as APR.

The commitment must be on going with good communications at all times. To say that I was fortunate to have someone of Fred Peal's skill and dedication on the APR project is an understatement. If you are interested in computerized degree checks, you need to carefully analyze the support, capabilities and commitment available to you from the Center. I have had some anxious moments and there could be more ahead.

Maintaining the APR takes about 10 per cent of one person's time in the Center if it is someone knowledgeable about the project. Test runs involving changes to the program are required. A sample before the production runs is a must to make sure everything is working properly. This procedure has saved us time, money and agony.

The cost of the APR with copies for the student, advisor, Dean and and Registrar is 16 cents, which includes computer time and paper.

While microfiche or perhaps terminals look very attractive in using the APR, we are using paper copy for the students, faculty, Deans and the Registrar's Office. The Dean's Office in Arts and Sciences may move to microfiche.

I have discussed the benefits of the APR and some problems. I want to be very clear that the programming and systems work on the APR have time and again withstood challenges of every type. Our failures have been in communication and management.

Now a quick look at a spin off of the APR.

The impact of the APR has not only led to more advising but to the request for more information. The word now is retention. Tables of information have been devised to help us better understand the characteristics of retention and withdrawal of students. The requests on campus for the retention related information are more extraordinary than the Feds require. Without the APR system, data for retention and withdrawal would have been significantly slowed.

The concern about retention and services to students has led to the creation of an Academic Services Center. It is a coordinating unit and academic resource center for students, faculty and staff. The purposes of the Center include support and assistance for undergraduate admissions, retention academic and career advising. The concept of

integrating academic and career education for liberal arts undergraduates at the university level (through a faculty based model) is the first of its type in the nation, and I'm pleased to say it is receiving some very positive recognition from the Office of Education. Headed by Dr. Aitken, the Academic Services Center has added a valuable dimension to the campus.

Another spinoff of the APR will be to help project the number of students needing certain courses and the number of sections of a course that is needed. This will be a valuable tool for Deans and Department Chairmen in planning future course offerings. We have not arrived at that point.

Finally, the computer assisted graduation check and the computer assisted advising is working well at the University of Denver. It is not without its problems and challenges, but the rewards and potentials have made the effort worth-while.

BIBLIOGRAPHY

Aitken, Caroline E. "A Computerized Tool for Academic Advisors". Unpublished Ph.D. Dissertation, University of Denver, 1977.

Carnegie Commission on Higher Education. Reform on Campus. New York: McGraw-Hill, 1972.

Levine, Arthur and John Weingart. Reform of Undergraduate Education. San Francisco: Jossey Bass, 1973.

APPENDIX A

Messages are provided where violations of regulations have occurred which affect the hours earned toward the degree. A list of possible messages appears below:

1 EXCESS HOURS IN PHYSICAL EDUCATION

Regulation: Only 3 hours of Physical Education may apply towards a degree.

2 EXCESS HOURS IN MAJOR

Regulation: 60 hours is the maximum number of hours in any one field which may apply towards the B.A. degree.

3 EXCESS HOURS IN APPLIED MUSIC

Regulation: 22 hours is the maximum applied hours acceptable towards the degree.

4 EXCESS HOURS IN APPLIED THEATRE

Regulation: 22 hours is the maximum applied hours acceptable towards the degree.

5 EXCESS HOURS IN COLLEGE OTHER THAN ARTS AND SCIENCES

Regulation: 45 hours is the maximum number allowed from a college other than Arts & Sciences to apply towards the Bachelor of Arts degree.

6 APPROVED BY EXCEPTION

This message when appearing by a course indicates that the course has been placed in a certain section of the APR by the approval of the academic deans, or in certain cases department chairpersons, as an exception for that particular student. When message *6* appears next to 'complete', it indicates that the requirement has been completed by approval of the academic deans, or in certain cases department chairpersons, as an exception for that particular student.

7 APPROVED FOR CREDIT BY EXCEPTION

This message means that action has been taken concerning courses previously not applying for credit towards the degree which now have been approved for credit. For example, a graduate course which required permission to use on the degree has been given approval.

8 EXCESS HOURS, APPROVED FOR CREDIT BY EXCEPTION

This message indicates that courses previously exceeding maximum hour limitations have been approved by the academic deans or the Irregularities Committee to apply towards the degree.

9 NEED VALIDATION BY DEPARTMENT

Message *9* refers to transfer courses needing validation by the appropriate department before credit can be granted.

10 EXCESS INDEPENDENT STUDY HOURS

Regulation: 10 hours of Independent Study is the maximum allowed to apply towards the degree.

11 EXCESS PASS/FAIL HOURS OR CLASSES

Regulation: A maximum of 20 hours (or 4 pass/fail courses) may apply towards the degree.

12 45 HOURS RESIDENCE REQUIRED

Regulation: For students transferring in more than 138 hours, a minimum of 45 hours of course work needs to be taken at the University of Denver to fulfill the residency requirement.

13 MAXIMUM HOURS ACCEPTED FROM JUNIOR COLLEGE

Regulation: A maximum of 90 academic and 3 physical education credit hours from a junior college can apply towards the undergraduate degree.

14 PERMISSION NEEDED TO APPLY TOWARD DEGREE

Regulation: Graduate level courses must be approved for undergraduate credit before applying towards the degree.

15 COURSE REPEATED

Regulation: When a course is repeated, only the credits from the second course can apply towards the degree. However, both grades are included in the grade point average.

16 EXCESS HOURS IN ONE DEPARTMENT

Regulation: 60 hours is the maximum number of hours in any one field which may apply towards the B.A. degree.

17 MAXIMUM HOURS ACCEPTED FROM JUNIOR COLLEGE

Regulation: A maximum of 96 academic and 3 physical education credit hours from a junior college may apply towards an undergraduate degree.

18 MAY APPLY TOWARD BUSINESS REQUIREMENT - SEE DIVISION OF STATISTICS

Regulation: See Division of Statistics for review of transfer work.

19 UPPER DIVISION BY PERMISSION

Regulation: A course numbered as lower division may be approved for Upper Division by permission of the instructor, department chairman and Dean.

BACHELOR OF ARTS DEGREE

1970 to present - courses applying toward General English requirement.

I. GENERAL EDUCATION REQUIREMENTS

A. GENERAL ENGLISH AND HUMANITIES

Pattern A: 23 hours minimum

1. General English 14 hours minimum

12-1.1, 1.2, 1.3 General English

12-1.11, 1.12, 1.13, 1.21, 1.31

Only two out of three courses may apply.

- 12-9 Sentences and Paragraphs
- 12-11 General English-Expository Writing
- 12-12 Intermediate Composition

12-10.1 .2 .3 General English Recent Fiction

12-19, 29 Foreign Student English

12-19.1 Foreign Student English

12-22 Reading and Writing

12-25 General English-Readings in major American writers.

12-25.1 .2 .3 Seminar in major American writers

12-33 The Literary Tradition

12-45 General English-Readings in major English writers

12-45.1 .2 .3 Seminar in major English writers

12-61 General English Seminar

12-62 General English Seminar

12-63 General English Seminar

12-85 General English-Readings in major European writers

12-85.1 .2 .3 Seminar in major European writers

12-90 Literary Experience

12-111 Expository writing

12-125 Major American Writers

12-145 Major English writers

12-185 Major European writers

APPENDIX C

COMPUTER INFORMATION

The current B6700 system mainframe and peripherals include a central processor with a 5MHz clock rate, 1.5 million bytes of core memory, 40 million bytes of disk, 700 million bytes of disk pack, four 9-track, 1600 BPI tape drives, and one 7-track 200/556/800 BPI tape unit. Time sharing services are enabled by a data communications processor with 32 communication lines that support 16 dial-in teletype compatible terminals and 20 direct wired terminals.

COBOL, BASIC, FORTRAN, and PL/I compilers are available and used mostly for instructional and research activities. Most of the administrative systems are written in ALGOL, including the APR.

The APR was designed to become a logical part of the existing Student Information System and thus far has shown the flexibility to assimilate easily general education and department requirement changes. Its flexibility should also lend itself to packaging for availability to other institutions.